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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,533	11/27/2001	Anders Larsson	HO-P02300US0	9584
26271	7590	12/15/2004	EXAMINER	
FULBRIGHT & JAWORSKI, LLP 1301 MCKINNEY SUITE 5100 HOUSTON, TX 77010-3095			HANLEY, SUSAN MARIE	
			ART UNIT	PAPER NUMBER
			1651	

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/937,533

Applicant(s)

LARSSON ET AL.

Examiner

Susan Hanley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8,10-12,17-21 and 23-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8,10-12,17-21 and 23-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-8, 10-12, 17-21 and 23-36 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-8, 10-12, 17-21 and 23-36 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method, a product made thereof and a method of use thereof, for decreasing the water-contact angle of a substrate surface, such that said decreased angle remains so for a month, wherein the substrate surface is made of plastic and comprises a channel having a depth of ≤ 1000 μm to serve as a liquid transportation systems, comprising treating the substrate surface with a gas plasma of a non-polymerizable gas under conditions wherein the intensity of the plasma is ≥ 5 $\text{W}/\text{cm}^3/\text{min}$, the power is ≥ 250 W and the gas flow is ≤ 100 cm^3/min , to produce a treated substrate having an immediate contact angle of $< 30^\circ$ after washing said treated substrate with a mixture of pure water and ethanol, does not reasonably provide enablement for a method of permanently decreasing the immediate water contact angle of a substrate surface comprising a channel having a depth of ≤ 1000 μm , to serve as a liquid transportation systems and made from a plastic material, comprising treating the substrate surface with a gas plasma of a non-polymerizable gas, wherein the intensity of the plasma is selected to make a treated surface having a permanently decreased water-contact angle compared to an untreated substrate surface, and a product made by such a process and a method of using, thereof. The specification does not convincingly demonstrate how any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The specification discloses a method for making a substrate having an immediate water contact angle of $< 30^\circ$ after washing with an ethanol/pure water mixture that is made by treating a plastic material with a gas plasma of a non-polymerizable gas under conditions wherein the intensity of the plasma is $\geq 5 \text{ W/cm}^3/\text{min}$, the power is $\geq 250 \text{ W}$ and a gas flow of $\leq 100 \text{ cm}^3$. However, there is no disclosure related to making a substrate having a water contact angle of $< 30^\circ$, wherein said angle is $< 30^\circ$ for an indefinite period of time, nor is there disclosure related to determining any other combination of reaction conditions to achieve the disclosed substrate having a water contact angle that remains $< 30^\circ$ degrees after the ethanol/pure water washing.

The limited showing of a specific range of parameters to render a plastic substrate more hydrophilic such that the immediate water-contact angle is changed to and remains $< 30^\circ$ after a month is not sufficient to enable a claim drawn to any set of reaction conditions because the art of surface modification is too unpredictable. One cannot assume that a limited range of reaction conditions for a gas polymerization process to produce a material that can maintain a water contact angle that is stable for a month ensures that any set of reaction conditions will produce a substrate with the same results. As pointed out by Applicant in the specification, when the instant invention was conceived, the common knowledge for treatment of plastic gasses with non-polymerizable gas plasma was that the hydrophilized surfaces obtained from said processes were unstable during washing or storing. Thus, the art is very unpredictable. The instant specification does not disclose how the skilled artisan would discover other reaction conditions that would bring about a substrate with a stable water contact angle with the same results.

It is known that achieving a substrate having a water-contact angle that remains stable for a month by a gas plasma reaction process with a non-polymerizable gas was not known by the prior art. There is no predictable way for a skilled artisan to know a priori what reaction conditions will make a substrate with the desired water contact angle characteristics. The limited disclosure cannot be extrapolated by the skilled artisan to predict these characteristics. It would require one of ordinary skill in

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the art undue experimentation to establish the reaction conditions to render more hydrophilic, wherein said surface has an adjusted water contact angle of $< 30^\circ$ that remains unchanged for a month. Thus, claims -8, 10-12, 17-21 and 23-36 are not commensurate in scope with the enabling disclosure.

Allowable Subject Matter

A method, a product made thereof and a method of use thereof, for decreasing the water-contact angle of a substrate surface, such that said decreased angle remains so for a month, wherein the substrate surface is made from plastic and comprises a channel having a depth of $\leq 1000 \mu\text{m}$, to serve as a liquid transportation systems, comprising the treating the substrate surface with a gas plasma of a non-polymerizable gas under conditions wherein the intensity of the plasma is $\geq 5 \text{ W/cm}^3/\text{min}$, the power is $\geq 250 \text{ W}$ and a gas flow of $\leq 100 \text{ cm}^3/\text{min}$ to produce a treated material having an immediate water-contact angle of < 30 after washing said treated substrate with a mixture of pure water and ethanol, wherein the said contact angle remains so a month is neither known nor suggested by the prior art.

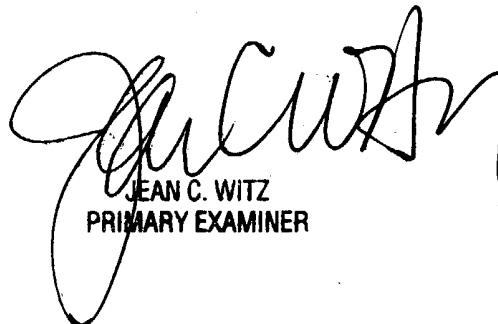
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Hanley whose telephone number is 571-272-2508. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Susan Hanley
Patent Examiner
AU 1651



JEAN C. WITZ
PRIMARY EXAMINER